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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR     | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|--------------------------|---------------------|------------------|
| 09/803,735  | 03/12/2001  | Mounir Ben Fredj         | 1200.474            | 8681             |
| 7590 04/21/2004   |             |                          |                     |                  |
| Liniak, Berenato, Longacre & White<br>Suite 240<br>6550 Rock Spring Drive<br>Bethesda, MD 20817 |             | EXAMINER<br>FORD, JOHN K |                     |                  |
|   |             | ART UNIT PAPER NUMBER    |                     |                  |
|   |             | 3753                     |                     |                  |

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/803,735

Applicant(s)

Fredj et al.

Examiner

FORD

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3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12/30/03
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 6, 7, 10, 12, 13, 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14, 11, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 5, 8, 9 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

Applicants' Appeal Brief has been carefully considered, and upon very careful review of applicant's own specification, it appears that the Examiner was mistaken as to a critical fact / interpretation of the means-plus-function recitation in claim 1 with regard to applicant's disclosed Figure 4. On page 9, lines 3-11 of applicant's specification it is disclosed that evaporator 20 (one of applicant's two claimed evaporators) is used as a heat source during heating (i.e. as a condenser) and it was on that basis that the rejection based on the combined teachings of JP '716/DE '811 was made. What the Examiner did not understand or appreciate about applicant's disclosure was what is found on page 7, lines 17-22: a discussion of the evaporator 20 being used as an "additional cold source for high cooling power" presumably to be used in conjunction with evaporator 16. The Examiner had interpreted to phrase "depending on a required cooling power" to include the need for no cooling (i.e. heating) consistent with what was disclosed on page 9, lines 3-11 of applicant's specification. Apparently, the means plus function recitation in claim 1 (i.e. means for selectively routing fluid flow between one of and both the first and second evaporators depending on a required cooling power) is a function performed by stop valve 18 as disclosed on page 6, lines 20-26 in regard to Figure 1 (but apparently also applicable to elected Figure 4). Is the Examiner's interpretation of the means-plus-function recitation in claim 1 correct?

As the Examiner now understands the aforementioned means-plus-function recitation, based on Appellants' arguments, the phrase is not intended to claim the action of valve 30 in Figure 4 whose action is described on page 7, lines 7-16. Is that correct?

The specification, on page 7, lines 17-22 appears to state at least two separate functions of the two valves 18 and 30 as a single collective action.

In response to this action please identify precisely which valve or valves and precisely what actions of that valve or those valves is/are being claimed in claim 1, lines 5-7 in the phrase "switching means for selectively routing fluid flow between one of and both the first and second evaporators depending on a required cooling power". It is unclear to the Examiner.

In view of the apparent differing interpretations of the means-plus-function recitation of claim 1, by Appellants and the Examiner, the finality of the previous office action is withdrawn and the Appeal will be deferred until such time as the claim interpretation question is settled. The Examiner regrets any inconvenience this may have caused. It is submitted that an appeal would serve no function, at this juncture, except to highlight a difference of opinion about what was being claimed, not to decide the fundamental issue of obviousness.

In view of the appeal Brief filed on December 30, 2003, PROSECUTION IS HEREBY REOPENED. A new final rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of JP 60-148716, EP 0964218 and Matsuoka.

JP '716 discloses in Figures 1 and 5 a single compressor 1 connected to a condenser 2 and two separate evaporators 5A and 5B, by way of expansion valves 4A and 4B, respectively. A heater 9 is shown between the two evaporators in Figures 1 and 5 and the heater 9 can be supplied with engine coolant (see translation page 12, lines 12-18). The heater in JP '716 is formed separately from the evaporators.

Regarding this last noted deficiency in JP '716, to have formed either evaporator 5A and heater 9 or evaporator 5B and heater 9 of JP '716 as a single unitary heat exchanger as taught by EP '218 to advantageously conserve space and reduce materials, would have been obvious to one of ordinary skill (see USP 6,328,100 for what appears to be an English language equivalent of EP 0964218).

As well JP '716 does not explicitly disclose that expansion valves 4A and 4B selectively route flow between one of and both the first and second evaporators (5A and 5B) depending on required cooling power.

As taught by Matsuoka (USP 4,807,445) in col. 5, lines 21-64, expansion valves can be constructed such that they are electronically opened and closed to selectively route flow to their associated evaporator Figure 14. The amount of refrigerant selectively routed to the evaporator will generally be dependent on the control constants, the temperatures of the refrigerant both before (not legended) and after (21) the evaporator 17 in Figure 14 of Matsuoka and, as clearly taught in col. 10, lines 5-30 of Matsuoka, the heat load of the evaporator.

To have used two electronic expansion valve systems of the type disclosed by Matsuoka at 16, including controller 22 and sensors 21, 30 etc. (shown in Figures 10 and 14 of Matsuoka) in place of each of the expansion valves 4A and 4B of JP '716 to selectively route flow from the compressor to each of the evaporators depending on the cooling power (heat load) that each was encountering would have been obvious to one ordinary skill in the art.

Claims 1-4, 11, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of JP 60-148716 and EP 0964218 and Lehane 2,328, 472.

JP '716 discloses in Figures 1 and 5 a single compressor 1 connected to a condenser 2 and two separate evaporators 5A and 5B, by way of expansion valves 4A and 4B, respectively. A heater 9 is shown between the two evaporators in Figures 1 and

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5 and the heater 9 can be supplied with engine coolant (see translation page 12, lines 12-18). The heater in JP '716 is formed separately from the evaporators.

Regarding this last noted deficiency in JP '716, to have formed either evaporator 5A and heater 9 or evaporator 5B and heater 9 of JP '716 as a single unitary heat exchanger as taught by EP '218 to advantageously conserve space and reduce materials, would have been obvious to one of ordinary skill (see USP 6,328,100 for what appears to be an English language equivalent of EP 0964218).

As well JP '716 does not explicitly disclose that expansion valves 4A and 4B selectively route flow between one of and both the first and second evaporators (5A and 5B) depending on required cooling power.

Lehane teaches two evaporators A and A" each with magnetically actuated valves 5 and 6 which are used selectively to introduce flow into the respective evaporators in direct proportion to the cooling load of the space.


To have used such a control system as taught by Lehane to control valves 4A and 4B of JP '716 to permit it to control room temperature under varying load conditions would have been obvious. If the system of JP '716 were to be operated continuously without any control what so ever the occupants would eventually become extremely uncomfortable. It therefore would have been obvious to have used the control system of Lehane to improve occupant comfort. Regarding claim 4, Lehane explicitly teaches two different capacity evaporators and it would have been obvious to have sized evaporators 5A and 5B of JP '716 accordingly to meet small and large loads.

Claims 5, 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to John Ford at telephone number 703-308-2636.



**John K. Ford**  
**Primary Examiner**

Ford/DL

March 23, 2004